Proudly Presented By: TOWN OF NAGS HEAD PWS ID# 04-28-010

Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP), conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to potential contaminant sources (PCSs). The results of the assessment are available in SWAP reports that include maps, background information and a relative susceptibility rating of higher, moderate or lower.

The relative susceptibility rating of each source for the Town of Nags Head was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area.). The assessment findings showed that Fresh Pond and Skyco Well #s 1, 4, 5, 7, 8, 9, 10, 11, 12, 13 and NRO Well #s 2, 7 and 8 all had a susceptibility rating of *Lower*. Skyco Well #s 1, 3, 4, 5, 6, 9 and 10 all had a susceptibility rating of *Moderate*.

The complete SWAP report for the Town of Nags Head may be viewed on the Web atwww.deh.enr. state.nc.us/pws/swap. Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this Web site may differ from the results that were available at the time this Annual Drinking Water Quality Report was prepared. To obtain a printed copy of the SWAP report, please mail a written request to Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634, or email a request to swap@ncmail.net. Please indicate your system name, your public water source identification number (PWSID), and your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at (919) 715-2633.

A susceptibility rating of higher **does not** imply poor water quality, but rather the system's potential to become contaminated by PCSs in the assessment area.

Continuing Our Commitment

The Town of Nags Head, Water Operations Division, is pleased to present to you this year's Annual Drinking Water Quality Report. This report is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information, because informed customers are our best allies.

Radon

pare County detected radon in the finished wqter supply in 2001. The running average of water testes was less than 53.6 pCi/L. There is no federal regulation for radon in drinking water. Exposure to air-transmitted radon over



long periods of time may cause certain adverse health effects.

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States. Radon comes from the natural (radioactive) breakdown of uranium in soil, rock and water and gets into the air you breathe. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, call your state radon program or call the EPA's Radon Hotline at (800) SOS-RADON.

What EPA Wants You to Know

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency's (EPA's) Safe Drinking Water Hotline at (800) 426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include **microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; **inorganic contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; **pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; **organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which can also come from gas stations, urban stormwater runoff, and septic systems; and **radioactive contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

What If I Have Any Questions or Would Like to Become More Involved?

If you have any questions about this report or your water, please contact Nancy Carawan at (252) 449-4210. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. The Town of Nags Head Board of Commissioners generally meet at 9 a.m. on the first Wednesday and at 7 p.m. on the third Wednesday of each month. Meetings are held in the Board of Commissioners Meeting Room located at 5301 South Croatan Highway, Nags Head, NC. For more information on meeting times, please contact Carolyn Morris, Town Clerk, at (252) 449-2009, or you may view meeting schedules and minutes of past meetings at the Board of Commissioner's Web site at www. townofnagshead.net.



When You Turn on Your Tap, Consider the Source

ur drinking water is purchased from the Dare County Regional Water System. This water originates from three sources. Two water treatment plants operated by the Dare County Regional Water System process groundwater from wells located in the upper and middle Yorktown Aquifer. The groundwater from the Upper Yorktown Aguifer is processed from wells located in the Skyco area of Roanoke Island. The groundwater from the Mid-Yorktown Aquifer is processed from wells located in Kill Devil Hills and Nags Head. The other source of water is surface water from Fresh Pond. This 27-acre reservoir is bisected by the boundary line separating Nags Head from Kill Devil Hills. The Town of Nags Head operates the Fresh Pond Water Treatment Plant, which processes water to sell to the Dare County Regional Water System.

Violations That Your Water System Received for the Report Year

During 2005, or during any compliance period that ended in 2005, Dare County received one Maximum Contaminant Level (MCL, also known as Tier II) violation for exceeding the limit for arsenic during the second quarter of 2005. The results were 23 ppb. Blending water from the Skyco plant allowed Dare County to reduce the concentration below the MCL of 10 ppb during the off-season months. Our customers should have already received Public Notice about this violation.

In January of 2004, Dare County commissioners approved the contract to begin construction of an arsenic removal system at the Dare County North Reverse Osmosis Plant to bring arsenic levels within the range of allowable limits. The project was completed in the fall of 2005. Since the arsenic removal vessels have been in operation, tests results have been "non-detectable" for arsenic.

Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer. To learn more about arsenic, visit the U.S. EPA's arsenic Web site at www.epa.gov/safewater/arsenic/index/html or call the Safe Drinking Water Hot Line at (800) 426-4791.

Important Drinking Water Definitions:

Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfection Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Nephelometric Turbidity Unit (NTU) - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Not Applicable (N/A) – Information not applicable/not required for that particular water system or for that particular rule.

Non-Detects (ND) - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.

Parts per billion (ppb), or Micrograms per liter (ug/L) - One part per billion corresponds to one minute in 2 thousand years, or a single penny in \$10 million.

Parts per million (ppm), or Milligrams per liter (mg/L) - One part per million corresponds to one minute in two years, or a single penny in \$10,000.

Picocuries per liter (pCi/L) - Picocuries per liter is a measure of the radioactivity in water.

Treatment Technique (TT) - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Water Quality Data Table of Detected Contaminants

A ccording to federal and state laws, we routinely monitor for more than 150 contaminants in your drinking water. The table below lists all the drinking water contaminants that we detected in the last round of sampling for the particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2005. The U.S. EPA or the state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Note: Dare County is represented by * and Nags Head by **.

Microbiological Contaminants								
CONTAMINANT (UNITS)	MCL VIOLATION Y/N¹	YOUR WATER	MCLG	MCL		LIKELY SOURCE OF CONTAMINATION		
Total Coliform Bacteria (presence or absence)	**N	**1	0	one positive monthly sample		Naturally present in the environment		
Turbidity (NTU) ²	**N	**0.3 100%	N/A	TT = 1 NTU TT = percentage of samples < 0.3 NTU		Soil r	Soil runoff	
Inorganic Contaminants								
CONTAMINANT (UNITS)	SAMPLE DATE	MCL VIOLATION Y/N	YOUR WATER	RAN LOW-H		MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Arsenic (ppb) ³	*2005 **2005	*Y **N	*5.75 **ND	*ND ** N		0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Fluoride (ppm)	*2005 **2005	*N **N	*0.95 **0.95	*0.90- ** N		4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Lead and Copper Contaminants								
CONTAMINANT (UNITS)	SAMPLE DATE	YOUR WATER	# OF SIT FOUND AF THE A	BOVE	MCLG	M	CL	LIKELY SOURCE OF CONTAMINATION
Copper (ppm) (90th percentile)	**2005	**0.658	**0		1.3	AL=	:1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90th percentile) ⁴	**2005	**4	**0	0		AL:	=15	Corrosion of household plumbing systems; erosion of natural deposits
Radioactive Contaminants								
CONTAMINANT (UNITS)	SAMPLE DATE	MCL VIOLATION Y/N	YOUF WATE		MCLG	М	CL	LIKELY SOURCE OF CONTAMINATION
Beta/photon emitters (pCi/L) ⁵	*2003 **2003	*N **N	*7.45 **2.4		0	50	*	Decay of natural and manmade deposits
Combined radium (pCi/L)	*2003 **2003	*N **N	*ND **1.3		0	5	5	Erosion of natural deposits
Uranium (pCi/L)	*2003 **2003	*N **N	*1.3 **ND		0	20	.1	Erosion of natural deposits

Disinfection By-product Precursors Contaminants (Our water system used Step 1 as the method to comply with the disinfectants/disinfectant by-products treatment technique requirements.)

CONTAMINANT (UNITS)	SAMPLE DATE	MCL/TT VIOLATION Y/N	YOUR WATER	RANGE LOW-HIGH	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Total Organic Carbon (ppm) (TOC)-RAW ⁶	**2005	N	6.1	5.3-6.8	N/A	TT	Naturally present in the environment
Total Organic Carbon (ppm) (TOC)-TREATED ⁶	**2005	N	3.6	3.2-4.2	N/A	TT	Naturally present in the environment
CONTAMINANT (UNITS)	MCL/MRDL VIOLATION Y/N		RANGE LOW-HIG		G	MCL	LIKELY SOURCE OF CONTAMINATION
TTHM (ppb) [Total Trihalomethanes] ⁷	*N **N	*66.92 **67.55	*24-12 **33-112		1	80	By-product of drinking water chlorination
HAA5 (ppb)[Total Haloacetic Acids]	*N **N	*6.73 **15.59	*ND-2 **3.4-25		Λ	60	By-product of drinking water disinfection
Chlorine (ppm)	*N **N	*.78 **1.40	*.2-1.6 **1.13-1		-	IRDL = 4	Water additive used to control microbes

Water Characteristics Contaminants (Secondary Contaminants, required by the NC Public Water Supply Section, are substances that affect the taste, odor, or color of drinking water. These aesthetic contaminants usually do not have any health effects and usually do not affect the safety of your water)

CONTAMINANT (UNITS)	SAMPLE DATE	YOUR WATER	RANGE LOW-HIGH	SECONDARY MCL
Iron (ppm)	*2005 **2005	*0.063 avg **0.19	*0.060-0.066 **N/A	0.3
Manganese (ppm)	*2005 **2005	*0.032 avg **ND	*0.030-0.035 **N/A	0.05
Sodium (ppm)	*2005 **2005	*167 avg **59.8	*158.8-176	N/A
рН	*2005 **2005	*7.73 avg **6.9	*7.68-7.78 **NA	6.5 to 8.5

UNREGULAT	ED INOR	GANIC	CONTA	MINANTS ⁸
CONTAMINANT	SAMPLE	YOUR	RANGE	SECONDARY

(UNITS)	DATE	WATER	LOW-HIGH	MCL
Sulfate (ppm)	**2005	**68	N/A	250

UNREGULATED VOC CONTAMINANTS							
CONTAMINANT (UNITS)	SAMPLE DATE	YOUR WATER	RANGE LOW-HIGH				
Chloroform (ppb)	*2004 **2005	* 0.6 avg ** 8.18	*ND-1.2				
Bromodichloromethane (ppb)	*2004 **2005	* ND **16.2	NA				
Bromoform (ppb)	*2004 **2005	* 4.65 avg **5.04	*ND-9.3				
Chlorodibromomethane (ppb)	*2004 **2005	* .65 avg **19.8	*ND-1.3				

Footnotes:

⁵The MCL for beta particles is 4 mem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

*Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the

occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

¹ MCLs are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95% or more of the monthly

samples must be less than or equal to 0.3 NTU. Not required by Dare County.

3 While your drinking water meets the U.S. EPA's standard for arsenic, it does contain low levels of arsenic. The EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects, such as skin damage and circulatory problems.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the

community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline at (800) 426-4791.

Depending on the TOC in our source water, the system MUST have a certain % removal of TOC or must achieve alternative compliance criteria. If we do not achieve that % removal, there is an alternative % removal. If we fail to meet the alternative % removal, we are in violation of a Treatment Technique.